

J. J. GAYNOR, E. W. MILLER & C. REMLER.
FEED MECHANISM FOR BOTTLING MACHINES.

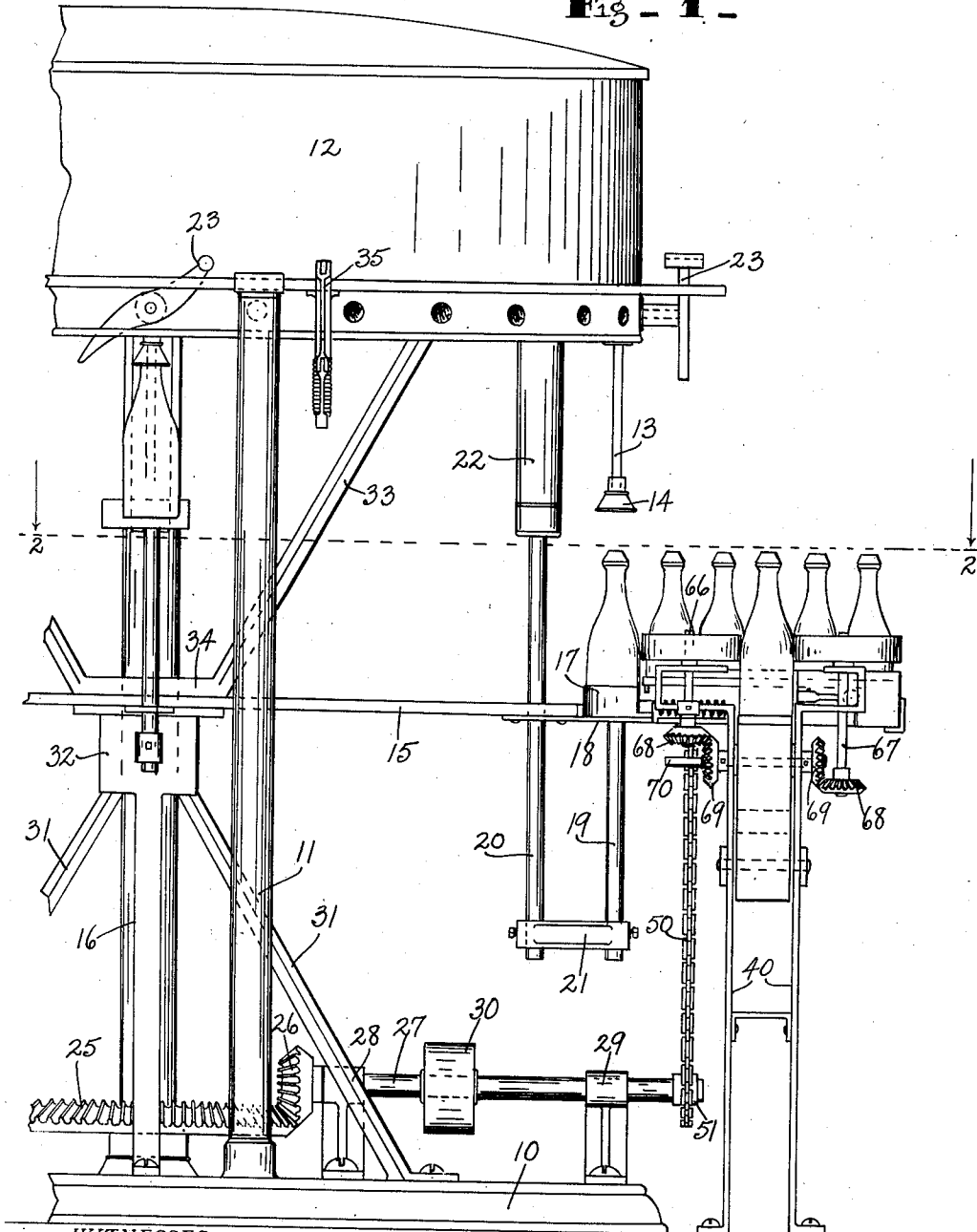
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1,023,074.

Patented Apr. 9, 1912.

3 SHEETS—SHEET 1.

Fig - 1 -



WITNESSES:

E. A. Mayo.
O. W. McLaughlin

INVENTORS:

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Edward W. Miller and
Clifford Remler.

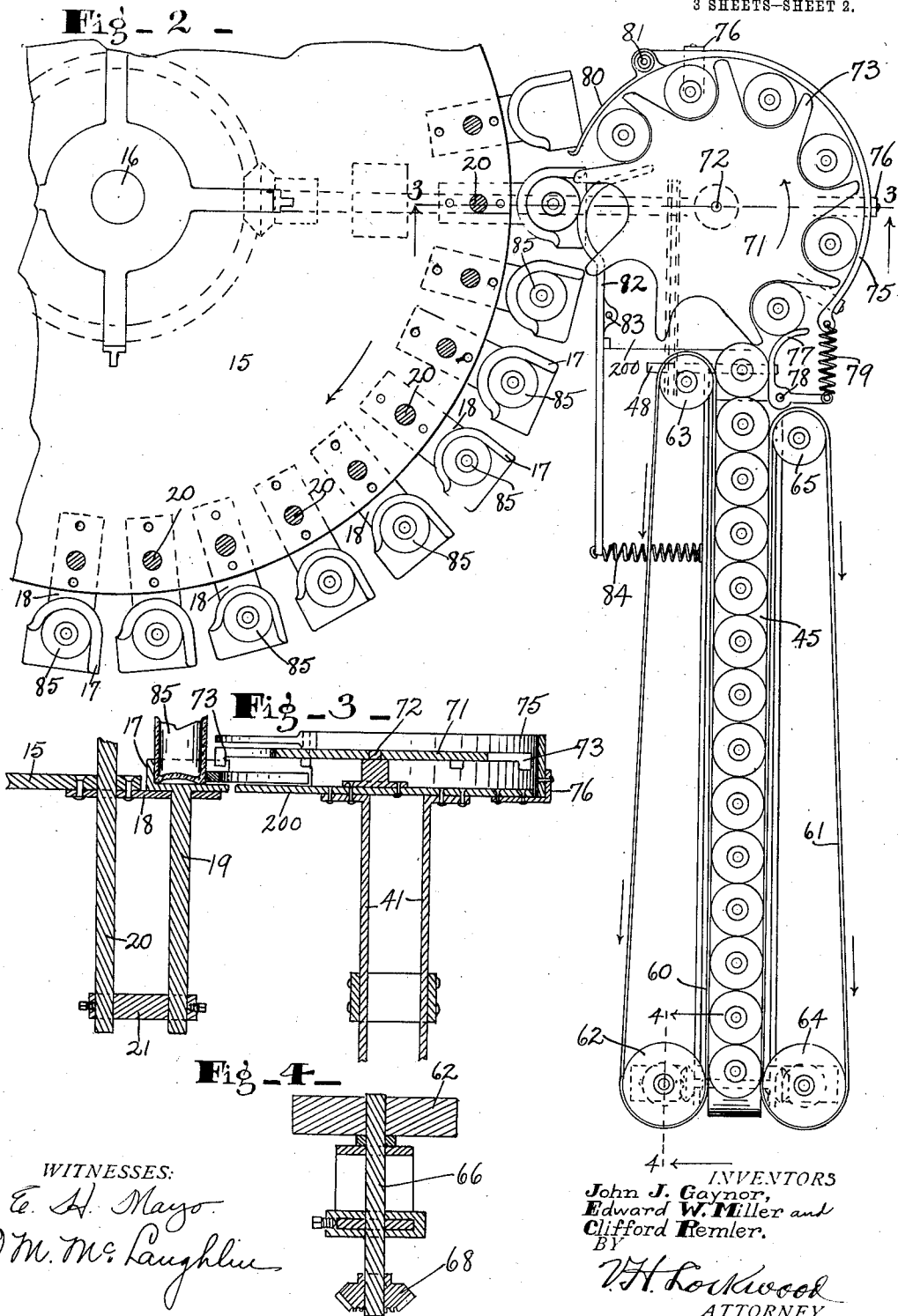
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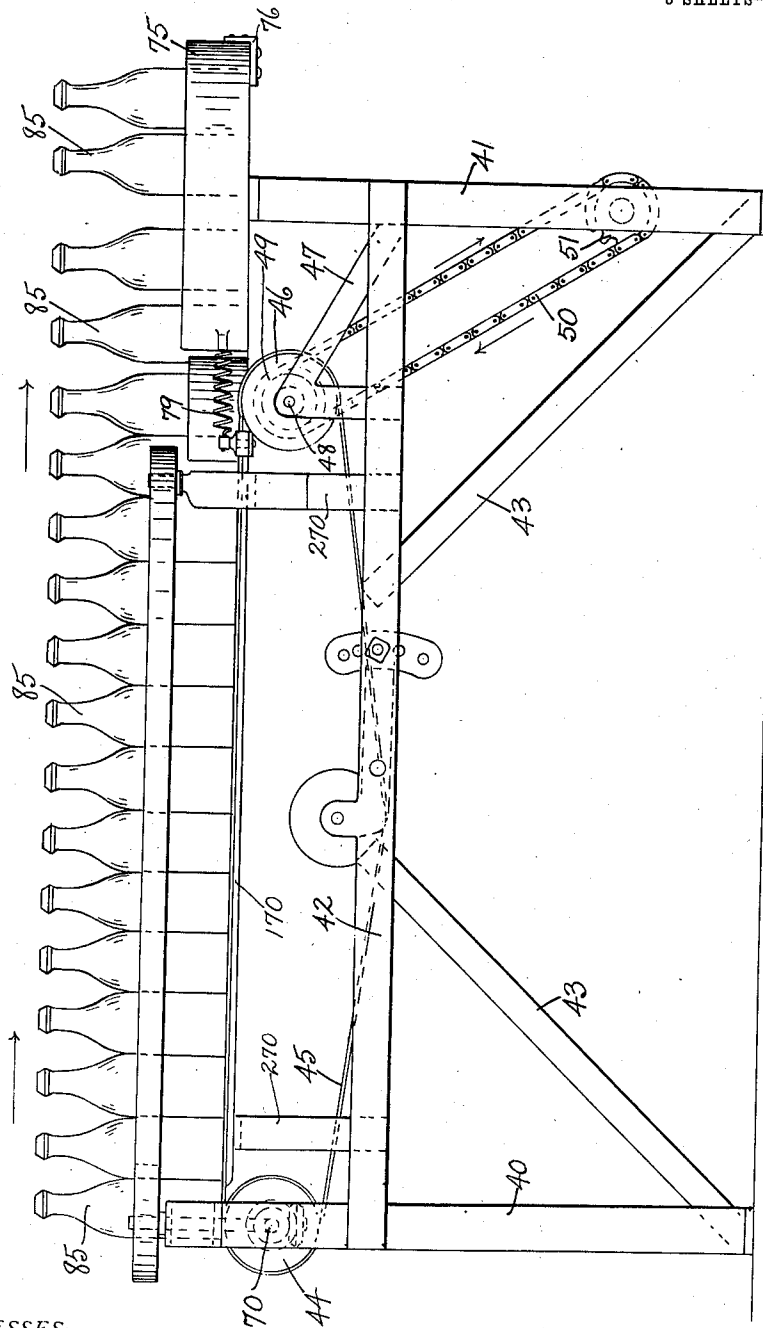
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Fig-5-



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UNITED STATES PATENT OFFICE.

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FEED MECHANISM FOR BOTTLING-MACHINES.

1,023,074.

Specification of Letters Patent.

Patented Apr. 9, 1912.

Application filed March 30, 1911. Serial No. 617,960.

To all whom it may concern:

Be it known that we, JOHN J. GAYNOR, EDWARD W. MILLER, and CLIFFORD REMLER, citizens of the United States, and residents of Indianapolis, county of Marion, and State of Indiana, have invented a certain useful Feed Mechanism for Bottling-Machines; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of this invention is to provide an automatic feeding device for a bottling machine, wherein the bottles are held in series by a horizontal rotary bottle holder beneath the filling device. The bottle holding and filling device may be old, so far as this particular invention is concerned.

The nature of this invention will be understood from the following description and claims and the accompanying drawings.

In the drawings, Figure 1 is an elevation of the bottle feeding, holding and filling mechanism with parts broken away and parts omitted for the sake of clearness. Fig. 2 is a horizontal section of part of the machine on the line 2—2 of Fig. 1, showing about one-fourth of the bottle holder and all of the bottle feeding mechanism in plan view. Fig. 3 is a vertical section through a portion of the machine on the line 3—3 of Fig. 2, with parts broken away. Fig. 4 is a vertical section on the line 4—4 of Fig. 2. Fig. 5 is a side elevation of the feeding mechanisms.

In detail, the drawings herein show an old form of bottling machine, consisting of a base 10 upon which there are a plurality of posts 11, only one of which, however, is herein shown, for supporting the filling tank 12 at the upper end of the machine. This tank contains the material which is to be introduced into the bottles. The filling tank 12 is cylindrical and there is an annular series of downwardly extending filling tubes 13 with a cup 14 on the lower end of each. In the drawings only two of these filling tubes are shown, one being down and the other up, but it is to be understood that there is an annular series of these, and about midway of the machine there is a horizontal plate 15 revolubly secured on the vertical shaft 16 so as to be revoluble, and it carries an annular series of bottle holders 17 located directly under the annular series of filler

tubes 13. About one-fourth of the series of bottle holders is shown in Fig. 2. These bottle holders consist of arms 18 secured to and extending radially from and beyond the plate 15, and on their outer ends they support the bottle holders 17 by means of the stem 19 extending down from each bottle holder, as seen in Fig. 3, loosely through the arm 18. Each bottle holder consists of a bottom plate and a rim plate extending partially around the same so that the rim is open on the outside and that enables the bottle to be inserted horizontally into place on the bottle holder. The lower end of the stem 19 is connected with the lower end of a plunger rod 20, see Fig. 3, by a connecting bar 21, and the plunger rod is vertically reciprocable through the arm 18 and revolving plate 15. The plunger rod is operated by compressed air in the cylinders 22. The admission of compressed air in the cylinder 22, and also the admission of the material to be filled into the bottles through the tube 13, are controlled by a valve 23. The bottle is first placed on the holder under the filler tube, as indicated in the right-hand part of Fig. 1. Then, during the revolution of the plate 15, the plunger is operated, which lifts the bottle in the position shown in the left-hand part of Fig. 1, and in its highest position the cup 14 will operate the valve further and cause the discharge of sufficient contents of the tank 12 to fill the bottle. Upon further operation the bottle is lowered.

The shaft 16 is driven by a bevel gear 25, pinion 26 and shaft 27 in the bearings 28 and 29. The shaft 27 carries a pulley 30 which is driven by a belt, not shown.

31 are the lower braces running from the base up to a collar 32 on the shaft. 33 are upper braces running from the tank 12 down to the collar 34 of the shaft. These collars maintain the horizontal position of the plate 15.

35 is a gage.

All of the foregoing mechanism is old and constitutes no part of this invention excepting as combined with the part hereafter explained for feeding the bottles to the machine.

Beside the machine there is placed a frame, as shown in Fig. 5, consisting of uprights 40 and 41, horizontal bar 42 and braces 43. Between the uprights 40 a pulley 44 is mounted which carries the conveyer 45

which extends over a pulley 46 on angle supports 47 secured to the bars 42. The pulley 46 is on the shaft 48, which carries a sprocket wheel 49 driven by a sprocket chain 50 from the sprocket wheels 51 secured on the shaft 27. There are also side belt conveyers 60 and 61. The belt 61 operates on the pulleys 62 and 63, while the other belt operates on pulleys 64 and 65. The pulleys 62 and 64 are on vertical shafts 66 and 67, respectively, see Fig. 1, which are vertically mounted in the angle iron frame in the upper end of the uprights 40 and are driven by bevel gears 68 at the lower ends of said shafts, which mesh with the bevel gears 69 on a horizontal shaft 70, upon which the pulley 44 is secured. In this way the side belts or conveyers are operated. Hence the side belts or conveyers cooperate with the bottom ones in moving the bottles upon a plate 170 supported on brackets 270 mounted on the cross bars 42. In front of the plate 170 there is a plate 200 which carries a star feeding wheel 71 centrally mounted at 72, which is revolved by the movement of the bottle holder 17. The periphery of the wheel 71 is recessed to receive the bottles, one in each recess. Between the recesses there are outwardly projecting arms 73 and their extreme outer ends are turned down, as shown in Fig. 3, somewhat so as to come in contact with the rims of the bottle holders, as there shown. The bottles are kept from escaping from the feed wheel 71 by a rim 75 secured on supports 76 from the plate 200. At the point where the bottles move from the conveyer 45 on the plate 200 there is a yielding arm 77 which engages the sides of the bottles, said arm being one end of a bell crank fulcrumed on the plate 170 at 78 and actuated by the spring 79 which extends from the other arm of the bell crank lever to one end of the rim 75. There is also a spring arm 80 fulcrumed at 81 on the other end of the rim 75 and actuated by a spiral spring so that it holds the bottle from escape at the point where the bottle leaves the feed wheel 71 and plate 200 and moves upon one of the bottle holders 17. The spring arm 80 cooperates with the spring trip 82, fulcrumed at 83 on the plate 200 and actuated by the spring 84 extending from the ends of the trip 82 to the side bar 42. The trip 82 is curved at its inner end in position to engage the bottle and push it out of the notch or recess in the said plate 71 into one of the holders 17. As the bottle engages the inclined end of the trip, the arm 73 and the curved end of the trip 82 cooperate to push the bottle off the plate 71 upon the bottle

holder, as shown in Fig. 2. Therefore, it is desirable that the distance between the centers of the bottle holder shall be substantially the same as the distance between the arms 73, for said arms and the wheel 71 are actuated by the rims on the holders and not by any particular gearing.

85 represents the bottles.

We claim as our invention:

1. The combination with a series of horizontally revolving bottle holders, a horizontal plate adjacent the path of the bottle holders at one point, a star wheel mounted on said plate for receiving the bottles and feeding them successively to the bottle holders, the arms of said star wheel projecting into the path of the bottle holders so as to be actuated thereby, an endless conveyer for conveying the bottles to said star wheel, and means for actuating the conveyer, of a yielding arm adapted to engage the bottle at the point where it leaves said conveyer and moves into a notch in the star wheel but which yields if a projection of the star wheel should centrally engage the bottle, whereby the bottles may be fed irregularly to the star wheel and will not be broken thereby.

2. The combination with a series of horizontally revolving bottle holders, a horizontal plate adjacent the path of the bottle holders at one point, a star wheel mounted on said plate for receiving the bottles and feeding them successively to the bottle holders, the arms of said star wheel projecting into the path of the bottle holders so as to be actuated thereby, an endless conveyer for conveying the bottles to said star wheel, and means for actuating the conveyer, of a yielding arm adapted to engage the bottle at the point where it leaves said conveyer and moves into a notch in the star wheel but which yields if a projection of the star wheel should centrally engage the bottle, whereby the bottles may be fed irregularly to the star wheel and will not be broken thereby, and another yielding arm mounted on said plate near the point of discharge from the star wheel to the bottle holders to hold the bottles upright regardless of their irregularity upon said plate as they are approaching and passing into the bottle holders.

In witness whereof, we have hereunto affixed our signatures in the presence of the witnesses herein named.

JOHN J. GAYNOR.
EDWARD W. MILLER.
CLIFFORD REMLER.

Witnesses:

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O. M. McLAUGHLIN.